Alternative #3 CAD Cell Disposal (Draft)

Steps 1, 4, 7

Steps 1, 4, and 7 will be completed in the same manner being used for dredging in 2007. Step 1 will continue through 2008, year 2. Prior to starting Step 2, year 3 will consist of prepping area C for sand and purchasing the marine equipment that will be required to perform work later in the project. The cost for the marine equipment is the same as in Alternative #2. Area C will have to be prepared to receive sand during the excavation of the city CAD cell. Sand placement (capping) will not be performed as fast as the City will excavate. The area to be prepped will be smaller than Alternative #2 due to the reduced amount of sand that will be placed in Area C. This stockpile area will be primarily located on the Western side of the site, however the DDA will also be used. The entire site cannot be used for a stockpile due to the need for further hydraulic dredging and the subsequent use of existing facilities.

Step 2

For estimating purposes it was assumed that the production rate of sand placement would be 500 cubic yards per day. The 17 man crew would be working 12 hours per day, 5 days per week, to complete this task. The task would take approximately 11 months to complete. The marine equipment that was purchased in the previous year would be used to mechanically place a sand layer over the upper dredge areas. It has also been assumed that SES would perform this work.

Step 3

This task would be subcontracted out to a dredge company. The material would be excavated with a clamshell and placed into a bottom dump scow. The assumed production rate for this task would be 3000 yards per day. The dredge crew would work 24 hrs a day, 6 days a week, to complete this work. This task would take approximately 2½ months to complete. The rates used for this task are similar to the cost on other USACE projects.

Step 4

This step will be completed using current dredging methods. To remove 66,000 yards of material it will take approximately 3½ years to complete. During this time the marine equipment will be serviced and stored on the Area C site.

Step 5

This task could start and possibly be completed in the same year that step 4 was completed. The production rate for this task will also be 500 cubic yards a day and take

6 months to complete. The remaining money will be used to cost share with the city. A 17 man crew working 12 hours per day 5 days per week will be used to complete this task. The marine equipment that has been stored at Area C will also be used to complete this work due to the depth of water in the work area.

Step 6

This task would be completed in one production season. A 17 man crew would be used to complete the work. The crew would be working 12 hours a day, 5 days per week. The production rate for this work will be 1000 cubic yards per day. The production rate has been increased from 500 cubic yards per day due to deeper water in some of the dredge areas. In areas that have deep water larger equipment will be used and production rates will be much higher. The work will take 7½ months to complete. The marine equipment will be used for the areas close to shore and areas that do not have draft for the large equipment. When the marine equipment is used, the small scows will be unloaded into larger scows that will take the material to the CAD cell. This operation will be set up in front of Area C in the deeper water. A crane will be set on a flat deck barge and the empty large dump bottom scow will be tied to one side. On the other side the loaded small scows will be tied and the crane will transfer the material from one to the other. In the deeper water the larger equipment will be used and the crane will excavate the material and place it into the large dump scow for direct transportation and placement into the CAD cell.

Step 7

This will be completed using the current dredging method. To remove approximately 246,000 yards of material it will take approximately 12 years to complete.

Step 8

This task has not changed from Alternative #2.

Alt #3 CAD Cell Assumptions

The following assumptions and questions have been made during the completion of this basis of estimate:

- SES will perform all dredging north of the 195 bridge.
- A different dredging contractor will be used to complete the work south of 195.
- The City of New Bedford will excavate the CAD Cell.
- No cost for capping material has been included. This material will be supplied by the city.
- No cost has been included in the estimate for turbidity control during the dumping of the material into the CAD cells.

- It has been assumed that the existing equipment at Area C and Area D will not be demobilized.
- Will modifying the elevation of the river bottom cause adverse hydraulic effects such as flooding surrounding areas? Modeling needed to assess the possibility. This approach could change the size of mudflats and their locations.
- How do you ensure that the contaminated material gets covered if you place the cap material on the soft sediment? The material could be displaced or intermingled rather than covered. Pilot test needed to assess the viability of covering the contaminated sediments.
- Additional cap material may be needed depending on the success of capping.
- Trailer complex will remain in place
    - Stockpile will be started on the west end of the site and move to the east
- Utilities and foundations/slags will remain in place
- How do we grade the site at completion?
- Will the stockpile have to be covered? Estimate assumes no covering or dust control.
- Will the water quality monitoring remain the same? It is assumed that the pushboats involved would create serious water quality issues, much worse that the current operation.
- Will any long term monitoring devices have to be installed at the completion of the CAD cell? None are assumed in this exercise.

PURCHASE MARINE EQUIPMENT (PRIOR TO STEP 2)

ITEM	QTY	RATE/HRS	TOTAL
25 x 56 Dump Scows	8	$ 250,000.00	$ 2,000,000.00
27 x 80 Float Dock	3	$ 230,000.00	$ 690,000.00
Push Boats/with Power	8	$ 150,000.00	$ 1,200,000.00
TOTAL			$ 3,890,000.00

PREP AREA C FOR STOCK PILE - LABOR (PRIOR TO STEP 2)

ITEM	QTY	HOURS	RATE/HRS	TOTAL
Operator - straight	4	352	$ 87.25	$ 122,848.00
Operator - O/T	4	176	$ 130.88	$ 92,139.52
Laborer - straight	10	352	$ 63.78	$ 224,505.60
Laborer - O/T	10	176	$ 95.67	$ 168,379.20
Foreman - straight	1	352	$ 65.54	$ 23,070.08
Foreman - O/T	1	176	$ 98.31	$ 17,302.56
TOTAL Craft Labor				$ 648,244.96

PREP AREA C - EQUIPMENT (PRIOR TO STEP 2)

ITEM	QTY	MONTHS	RATE/MO	TOTAL
Excavator	1	2	$ 15,000.00	$ 30,000.00
Dozer	1	2	$ 6,500.00	$ 13,000.00
Roller	1	2	$ 6,500.00	$ 13,000.00
Loader	1	2	$ 11,500.00	$ 23,000.00
Fuel & Maintenance	1	LS	$ 11,850.00	$ 11,850.00
Mob/Demob	1	8	$ 1,000.00	$ 8,000.00
TOTAL Equipment Rates				$ 98,850.00

PREP AREA C - MATERIALS

ITEM	QTY	UOM	RATE/per	TOTAL
Manholes	0	EA	$ 2,600.00	$ -
ADS Pipe	0	LF	$ 35.00	$ -
Fill	0	Ton	$ 22.00	$ -
Rip Rap	0	Ton	$ 34.00	$ -
TOTAL Materials				$ -

PREP AREA C - OTHER (PRIOR TO STEP 2)

ITEM	QTY	UOM	RATE/per	TOTAL
Disposal of Fence/Debris	0	LS	$ 50,000.00	$ -
SES Retainer	1	LS	$ 1,000,000.00	$ 1,000,000.00
Misc. Materials	1	LS	$ 100,000.00	$ 100,000.00
SES ODC's	8	ea	$ 50,000.00	$ 400,000.00
				$ 1,500,000.00

CAP MU1 - MU4, and MU102 - LABOR (Step 2)

ITEM	QTY	HOURS	RATE/HRS	TOTAL
Operator - straight	5	1,880	$ 87.25	$ 820,150.00
Operator - O/T	5	944	$ 130.88	$ 617,753.60
Laborer - straight	10	1,880	$ 63.78	$ 1,199,064.00
Laborer - O/T	10	944	$ 95.67	$ 903,124.80
Foreman - straight	2	1,880	$ 65.54	$ 246,430.40
Foreman - O/T	2	944	$ 98.31	$ 185,609.28
Teamster - straight	0	1,880	$ 65.54	$ -
Teamster - O/T	0	944	$ 98.31	$ -
TOTAL Craft Labor				$ 3,972,132.08

CAP MU1 - MU4, MU102 - EQUIPMENT (STEP 2)

ITEM	QTY	MONTHS	RATE/MO	TOTAL
Excavator	1	11	$ 40,000.00	$ 440,000.00
Dozer	1	11	$ 6,500.00	$ 71,500.00
Conveyor	1	11	$ 6,500.00	$ 71,500.00
Loader	1	11	$ 11,500.00	$ 126,500.00
Fuel & Maintenance	1	LS	$ 106,425.00	$ 106,425.00
Mob/Demob	16	EA	$ 1,000.00	$ 16,000.00
TOTAL Equipment Rates				$ 831,925.00

CAP MU1 - MU4, MU102 - MATERIAL (STEP 2)

ITEM	QTY	UOM	RATE/per	TOTAL
SES Retainer	1	LS	$ 1,000,000.00	$ 1,000,000.00
SES ODC's	44	ea	$ 50,000.00	$ 2,200,000.00
	0	LF	$ -	$ -
		Ton		$ -
				$ 3,200,000.00

MECHANICAL DREDGE LOWER HARBOR (STEP 3)					
ITEM	**QTY**	**UOM**	**RATE/per**	**TOTAL**	
Subcontractor	60	DAY	$ 27,000.00	$ 1,620,000.00	
SES Retainer	1	LS	$ 1,000,000.00	$ 1,000,000.00	
Misc. Materials	1	LS	$ 100,000.00	$ 100,000.00	
				$ 2,720,000.00	

CAP MU5 - MU8 - LABOR (STEP 5)

ITEM	QTY	HOURS	RATE/HRS	TOTAL
Operator - straight	5	976	$ 87.25	$ 425,780.00
Operator - O/T	5	488	$ 130.88	$ 319,347.20
Laborer - straight	10	976	$ 63.78	$ 622,492.80
Laborer - O/T	10	488	$ 95.67	$ 466,869.60
Foreman - straight	2	976	$ 65.54	$ 127,934.08
Foreman - O/T	2	488	$ 98.31	$ 95,950.56
Teamster - straight	0	976	$ 65.54	$ -
Teamster - O/T	0	488	$ 98.31	$ -
TOTAL Craft Labor				$ 2,058,374.24

CAP MU5 - MU8 - EQUIPMENT (STEP 5)

ITEM	QTY	MONTHS	RATE/MO	TOTAL
Excavator	1	7	$ 40,000.00	$ 280,000.00
Dozer	1	7	$ 6,500.00	$ 45,500.00
Conveyor	1	7	$ 6,500.00	$ 45,500.00
Loader	1	7	$ 11,500.00	$ 80,500.00
Fuel & Maintenance	1	LS	$ 67,725.00	$ 67,725.00
Mob/Demob	0	EA	$ 1,000.00	$ -
TOTAL Equipment Rates				$ 519,225.00

CAP MU5 - MU8 - MATERIALS (STEP 5)

ITEM	QTY	UOM	RATE/per	TOTAL
SES Retainer	1	LS	$ 1,000,000.00	$ 1,000,000.00
Misc. Materials	1	LS	$ 100,000.00	$ 100,000.00
SES ODC's	28	ea	$ 50,000.00	$ 1,400,000.00
				$ 2,500,000.00

MECHANICAL DREDGE MU22 - MU32 - LABOR (STEP 6)

ITEM	QTY	HOURS	RATE/HRS	TOTAL
Operator - straight	5	1,304	$ 87.25	$ 568,870.00
Operator - O/T	5	652	$ 130.88	$ 426,668.80
Laborer - straight	10	1,304	$ 63.78	$ 831,691.20
Laborer - O/T	10	652	$ 95.67	$ 623,768.40
Foreman - straight	2	1,304	$ 65.54	$ 170,928.32
Foreman - O/T	2	652	$ 98.31	$ 128,196.24
Teamster - straight	0	1,304	$ 65.54	$ -
Teamster - O/T	0	652	$ 98.31	$ -
TOTAL Craft Labor				$ 2,750,122.96

MECHANICAL DREDGE MU22 - MU32 - EQUIPMENT (STEP 6)

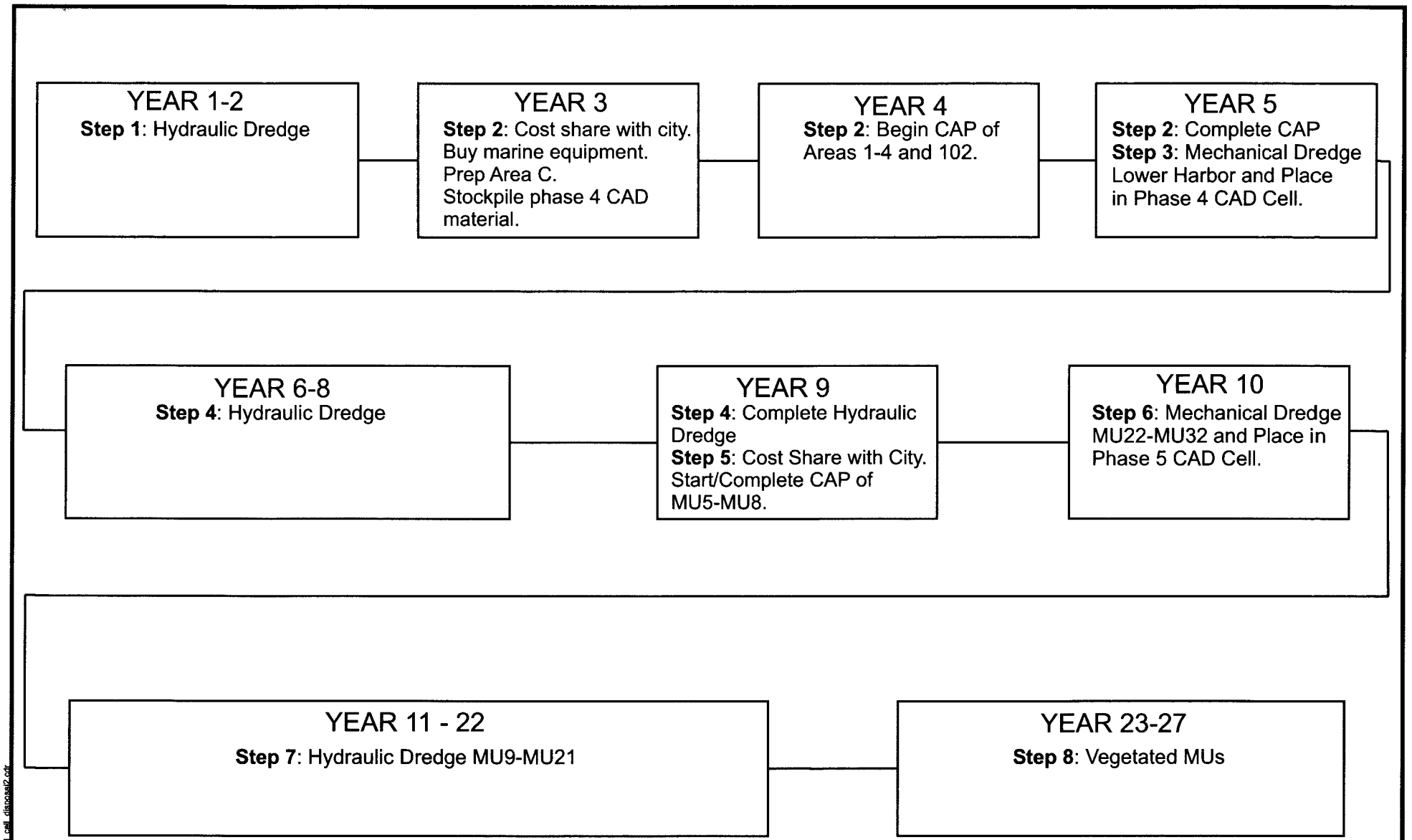
ITEM	QTY	MONTHS	RATE/MO	TOTAL
Excavator	1	8	$ 40,000.00	$ 320,000.00
100-Ton Crane	1	8	$ 40,000.00	$ 320,000.00
Hopper Scow	2	8	$ 40,000.00	$ 640,000.00
Flat Deck	1	8	$ 20,000.00	$ 160,000.00
Fuel	1	LS	$ 215,000.00	$ 215,000.00
TOTAL Equipment Rates				$ 1,655,000.00

MECHANICAL DREDGE MU22 - MU32 - MATERIALS (STEP 6)

ITEM	QTY	UOM	RATE/per	TOTAL
SES Retainer	1	LS	$ 1,000,000.00	$ 1,000,000.00
Misc. Materials	1	LS	$ 100,000.00	$ 100,000.00
SES ODC's	35	ea	$ 50,000.00	$ 1,750,000.00
				$ 2,850,000.00

NEW BEDFORD HARBOR MARINE EQUIPMENT (PRIOR TO STEP 2)

ITEM	QTY	RATE/HRS	TOTAL		
25 x 56 Dump Scows	8	$ 250,000.00	$ 2,000,000.00		
27 x 80 Float Dock	3	$ 230,000.00	$ 690,000.00		
Push Boats/with Power	8	$ 150,000.00	$ 1,200,000.00		
TOTAL			$ 3,890,000.00		



- Hydraulic dredge production is 20,000 yards/year
- CAP production is 500 yards/day
- Mechanical dredge above 195 is 1,000 yards/day
- Mechanical dredge below 195 is 3,000 yards/day (24 hours/day)

JE JACOBS

Alternative 3:
CAD Cell Disposal
New Bedford Superfund Site

CROBERTS 06/01/07 Figure 1

NEW BEDFORD HARBOR
UNIT RATE ANALYSIS

Funding Scenario - $15 MIL/YR

		YEAR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Assumed Funding	**$15,000,000**	**ACTIVITY**	Hydraulic Dredging (MU1-4, 102)	Hydraulic Dredging (MU1-4, 102)	Hydraulic Dredging (MU1-4, 102)	Hydraulic Dredging (MU1-4, 102)	Purchase Marine Equip Prep Area C	Cap MU1-4, 102	Cap MU1-4, 102 and Mechanical Dredge LH	Hydraulic Dredging (MU5-8)	Hydraulic Dredging (MU5-8)	Hydraulic Dredging (MU5-8)	Cap MU5-8	Mechanical Dredge MU22-32	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)
Escalation Rate	**3.50%**	**YEAR**	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Dredging Rate (CY/DAY)	**490**	**FUNDING**	$15,000,000	$15,839,382	$16,394,121	$16,967,915	$14,007,695	$17,023,223	$15,036,516	$18,448,341	$19,094,028	$23,066,952	$15,288,050	$21,691,331	$21,934,440	$22,702,145	$23,496,720	$24,319,106	$25,170,274	$26,051,234	$26,963,027	$27,906,733	$28,883,469
FIXED COSTS																							
PLANNING & REPORTING			$ 209,280	$ 216,605	$ 224,186	$ 232,032	$ 240,153	$ 248,559	$ 257,258	$ 266,262	$ 275,582	$ 285,227	$ 295,210	$ 305,542	$ 316,236	$ 327,305	$ 338,760	$ 350,617	$ 362,888	$ 375,589	$ 388,735	$ 402,341	$ 416,423
PROJECT MANAGEMENT			$ 1,609,723	$ 1,666,064	$ 1,724,376	$ 1,784,729	$ 1,847,195	$ 2,184,967	$ 2,614,791	$ 2,048,018	$ 2,119,698	$ 2,193,888	$ 2,270,674	$ 2,685,883	$ 2,432,403	$ 2,517,537	$ 2,605,650	$ 2,696,848	$ 2,791,238	$ 2,888,931	$ 2,990,044	$ 3,094,695	$ 3,203,010
SES MOBILIZATION/DEMOBILIZATION			$ 2,335,799	$ 2,417,552	$ 2,502,166	$ 2,589,742	$ -	$ -	$ -	$ 2,971,788	$ 3,075,801	$ 3,183,454	$ -	$ -	$ 3,529,552	$ 3,653,087	$ 3,780,945	$ 3,913,278	$ 4,050,242	$ 4,192,001	$ 4,338,721	$ 4,490,576	$ 4,647,746
SAMPLING & ANALYSIS			$ 325,532	$ 336,926	$ 348,718	$ 360,924	$ 373,556	$ 270,641	$ 400,162	$ 414,168	$ 428,664	$ 443,667	$ 321,437	$ 475,267	$ 491,902	$ 509,118	$ 526,938	$ 545,380	$ 564,469	$ 584,225	$ 604,673	$ 625,837	$ 647,741
O & M			$ 938,478	$ 971,325	$ 1,005,321	$ 1,040,507	$ 1,076,925	$ 1,114,617	$ 1,153,629	$ 1,194,006	$ 1,235,796	$ 1,279,049	$ 1,323,816	$ 1,370,149	$ 1,418,105	$ 1,467,738	$ 1,519,109	$ 1,572,278	$ 1,627,308	$ 1,684,264	$ 1,743,213	$ 1,804,225	$ 1,867,373
FEE			$ 936,123	$ 924,643	$ 957,030	$ 990,526	$ 784,941	$ 990,192	$ 586,752	$ 1,067,516	$ 1,104,874	$ 1,366,940	$ 842,760	$ 955,962	$ 1,291,472	$ 1,336,674	$ 1,383,457	$ 1,431,878	$ 1,481,994	$ 1,533,864	$ 1,587,549	$ 1,643,113	$ 1,700,622
NAE EXPENDITURES			$ 1,207,054	$ 1,249,301	$ 1,293,027	$ 1,338,283	$ 1,385,122	$ 1,433,602	$ 1,483,778	$ 1,535,710	$ 1,589,460	$ 1,645,091	$ 1,702,669	$ 1,762,263	$ 1,823,942	$ 1,887,780	$ 1,953,852	$ 2,022,237	$ 2,093,015	$ 2,166,271	$ 2,242,090	$ 2,320,563	$ 2,401,783
BATTELLE SEDIMENT SAMPLING & WQM			$ 583,691	$ 604,120	$ 625,265	$ 647,149	$ 669,799	$ 623,918	$ 3,228,775	$ 742,618	$ 768,610	$ 795,511	$ 741,019	$ 3,834,772	$ 881,998	$ 912,867	$ 944,818	$ 977,886	$ 1,012,112	$ 1,047,536	$ 1,084,200	$ 1,122,147	$ 1,161,422
BATTELLE DATABASE O&M & WEB			$ 297,214	$ 307,616	$ 318,383	$ 329,526	$ 341,059	$ 317,697	$ 1,644,081	$ 378,139	$ 391,373	$ 405,072	$ 377,324	$ 1,952,652	$ 449,110	$ 464,829	$ 481,098	$ 497,936	$ 515,364	$ 533,402	$ 552,071	$ 571,393	$ 591,392
SUBTOTAL FIXED COSTS			**$ 8,442,894**	**$ 8,694,152**	**$ 8,998,471**	**$ 9,313,418**	**$ 6,718,751**	**$ 7,184,193**	**$ 11,369,227**	**$ 10,618,225**	**$ 10,989,859**	**$ 11,597,898**	**$ 7,874,909**	**$ 13,342,491**	**$ 12,634,719**	**$ 13,076,934**	**$ 13,534,627**	**$ 14,008,339**	**$ 14,498,631**	**$ 15,006,083**	**$ 15,531,296**	**$ 16,074,891**	**$ 16,637,512**
REMAINING FUNDING AFTER FIXED COSTS			**$6,557,106**	**$6,305,848**	**$6,001,529**	**$5,686,582**	**$8,281,249**	**$7,815,807**	**$3,630,773**	**$4,381,775**	**$4,010,141**	**$3,402,102**	**$7,125,091**	**$1,657,509**	**$2,365,281**	**$1,923,066**	**$1,465,373**	**$991,661**	**$501,369**	**-$6,083**	**-$531,296**	**-$1,074,891**	**-$1,637,512**
COST SHARE AMOUNT -or- (FUNDING NEEDED)			$ -	$ (839,382)	$ (1,394,121)	$ (1,967,915)	$ 992,305	$ (2,023,223)	$ (36,516)	$ (3,448,341)	$ (4,094,028)	$ (8,066,952)	$ (288,050)	$ (6,691,331)	$ (6,934,440)	$ (7,702,145)	$ (8,496,720)	$ (9,319,106)	$ (10,170,274)	$ (11,051,234)	$ (11,963,027)	$ (12,906,733)	$ (13,883,469)
APPLICABLE UNIT RATE TSCA HYD DREDGING ($/CY)			314	325	336	348	360	0	0	399	413	428	443	458	474	491	508	526	544	564	583	604	625
APPLICABLE UNIT RATE SHEETPILING ($/DAY)																							
APPLICABLE UNIT RATE NON-TSCA HYD DREDGING ($/CY)			263	272	282	292			0	0	0												
APPLICABLE UNIT RATE MECHANICAL DREDGING ($/CY)								0	0				0	0									
# OF DREDGING DAYS TSCA			43	45	45	45		0	150	40	40	55	0	163	40	40	40	40	40	40	40	40	40
VOLUME DREDGED TSCA (CY)			20,883	21,986	21,987	21,987	0	0	150,000	19,600	19,600	26,800	0	163,000	19,600	19,600	19,600	19,600	19,600	19,600	19,600	19,600	19,600
CUMULATIVE VOLUME TSCA (CY)			20,883	42,869	64,856	86,843	86,843	86,843	236,843	256,443	276,043	302,843	302,843	465,843	485,443	505,043	524,643	544,243	563,843	583,443	603,043	622,643	642,243
HYDRAULIC DREDGING COSTS			**$ 6,557,106**	**$ 7,145,230**	**$ 7,395,650**	**$ 7,654,497**	**$ -**	**$ -**	**$ -**	**$ 7,830,115**	**$ 8,104,170**	**$ 11,469,054**	**$ -**	**$ -**	**$ 9,299,721**	**$ 9,625,211**	**$ 9,962,094**	**$ 10,310,767**	**$ 10,671,644**	**$ 11,045,151**	**$ 11,431,732**	**$ 11,831,842**	**$ 12,245,957**
CAD CELL ALTERNATIVE FIXED COSTS																							
PURCHASE MARINE EQUIPMENT							$ 4,620,100																
PREP AREA C							$ 887,314																
MECHANICAL DREDGE									$ 2,188,320					$ 6,686,665									
SES MATERIAL, RETAINER							$ 1,781,529	$ 3,933,617	$ 1,272,279				$ 3,649,924	$ 1,662,176									
CAP MUs								$ 5,905,413	$ 206,689				$ 3,763,217										

		YEAR #	22	23	24	25	26	27	28
Escalation Rate	**3.50%**	**ACTIVITY**	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Hydraulic Dredging (MU9-21)	Wetlands Remediation	Wetlands Remediation	Wetlands Remediation
Dredging Rate (CY/DAY)	**490**	**YEAR**	2028	2029	2030	2031	2032	2033	2034
		FUNDING	$29,894,390	$30,940,694	$32,023,618	$33,144,445	$31,959,141	$33,077,711	$34,235,431
FIXED COSTS									
PLANNING & REPORTING			$ 430,998	$ 446,082	$ 461,695	$ 477,855	$ 494,580	$ 511,890	$ 529,806
PROJECT MANAGEMENT			$ 3,315,115	$ 3,431,144	$ 3,551,234	$ 3,675,527	$ 3,804,171	$ 3,937,317	$ 4,075,123
SES MOBILIZATION/DEMOBILIZATION			$ 4,810,417	$ 4,978,782	$ 5,153,039	$ 5,333,396	$ 5,520,065	$ 5,713,267	$ 5,913,231
SAMPLING & ANALYSIS			$ 670,412	$ 693,876	$ 718,162	$ 743,297	$ 769,313	$ 796,239	$ 824,107
O & M			$ 1,932,731	$ 2,000,377	$ 2,070,390	$ 2,142,854	$ 2,217,853	$ 2,295,478	$ 2,375,820
FEE			$ 1,760,144	$ 1,821,749	$ 1,885,510	$ 1,951,503	$ 1,856,100	$ 1,921,063	$ 1,988,301
NAE EXPENDITURES			$ 2,485,845	$ 2,572,850	$ 2,662,900	$ 2,756,101	$ 2,852,565	$ 2,952,405	$ 3,055,739
BATTELLE SEDIMENT SAMPLING & WQM			$ 1,202,072	$ 1,244,145	$ 1,287,690	$ 1,332,759	$ 1,379,405	$ 1,427,685	$ 1,477,653
BATTELLE DATABASE O&M & WEB			$ 612,091	$ 633,514	$ 655,687	$ 678,636	$ 702,388	$ 726,972	$ 752,416
SUBTOTAL			**$ 17,219,825**	**$ 17,822,519**	**$ 18,446,307**	**$ 19,091,928**	**$ 19,596,440**	**$ 20,282,315**	**$ 20,992,196**
REMAINING FUNDING AFTER FIXED COSTS			**-$2,219,825**	**-$2,822,519**	**-$3,446,307**	**-$4,091,928**	**-$4,596,440**	**-$5,282,315**	**-$5,992,196**
COST SHARE AMOUNT -or- (FUNDING NEEDED)			$ (14,894,390)	$ (15,940,694)	$ (17,023,618)	$ (18,144,445)	$ (16,959,141)	$ (18,077,711)	$ (19,235,431)
APPLICABLE UNIT RATE TSCA HYD DREDGING ($/CY)			647	669	693	717	742	768	795
APPLICABLE UNIT RATE SHEETPILING ($/DAY)									
APPLICABLE UNIT RATE NON-TSCA HYD DREDGING ($/CY)									
APPLICABLE UNIT RATE MECHANICAL DREDGING ($/CY)			39	40	42	43			
# OF DREDGING DAYS TSCA			40	40	40	40	34	34	34
VOLUME DREDGED TSCA (CY)			19,600	19,600	19,600	19,600	16,660	16,660	16,660
CUMULATIVE VOLUME TSCA (CY)			661,843	681,443	701,043	720,643	737,303	753,963	770,623
HYDRAULIC DREDGING COSTS			**$ 12,674,565**	**$ 13,118,175**	**$ 13,577,311**	**$ 14,052,517**	**$ 12,362,702**	**$ 12,795,396**	**$ 13,243,235**
CAD CELL ALTERNATIVE FIXED COSTS									
16,394,121	PREP AREA C								
13,076,333	EXCAVATE GRAVEL								
	SES MATERIAL, RETAINER								
15,353,972	CAP MUs								
13,103,455	REMOVE SHEETS ADD CAP CAD CELL								

CURRENT REMEDY AND ALTERNATIVES 2 AND 3 COMPARISON					
ALTERNATIVE	FUNDING SCENARIO	TOTAL COST	TOTAL NET PRESENT VALUE	TOTAL NUMBER OF YEARS REQUIRED TO COMPLETE UPPER HARBOR REMEDIATION	TOTAL NUMBER OF YEARS REQUIRED TO COMPLETE REMEDIATION
CURRENT	$15MIL/YR	$1,127,869,315	$541,423,832	30	40
CURRENT	$20 MIL/YR	$983,490,472	$508,768,046	26	35
CURRENT	$22.5 MIL/YR	$866,474,832	$487,550,859	22	32
CURRENT	$25 MIL/YR	$720,101,786	$451,706,751	19	27
CURRENT	$30 MIL/YR	$540,000,000	$395,690,452	13	18
CURRENT	$55 MIL/YR	$363,474,828	$319,381,328	6	7
CURRENT	$80 MIL/YR	$340,620,240	$311,208,025	4	5
CAD CELL 2	$15MIL/YR	$587,297,707	$340,234,921	24	30
CAD CELL 3	$15 MIL/YR	$660,560,132	$400,581,137	25	28

Notes
1. Net Present Value assumes that interest rate equals inflation rate.
2. The estimated cost values presented in the table are for comparison purposes only and should not be used for individualized cost estimates.
3. CAD Cell Alternative 2 and 3 are drafts that need revisions
4. Costs do not include Tipping Fees

ALTERNATIVE 3 ASSUMPTIONS

Fixed cost Mob/Demob is for SES only. Years where SES is not on site, a retainer is paid (listed in purple block); mob/demob for other contractors is included in their total expenses

Fixed costs and unit rates are excalated (rate = 3.5%) from 2005.

Fixed costs for Project Management assumes 4 months active field work and 8 months off-season except:

-Year 7 has 4 months normal active field work (1.5x PM rate), 5 months off season (normal PM rate), and 3 months 24-hour shift dredging (2.5x PM rate)

-Years 6 and 12 have 8 months normal active field work (1.5x PM), and 4 months off-season (normal PM rate).

Fixed costs for ENSR and Battelle include sampling and analysis costs.

-Years 7 and 12 have higher (5x) costs dues to increased sampling for mechanical dredging (longer duration)

Fixed costs for Sampling and Analysis are lower (70%) Years 6 and 11 due to non-dredging activities.

Fee is calculated as 7% of Jacobs and Jacobs subcontractor costs

-Fee is not calculated for NAE Expenditures, ENSR Expenditures, or Battelle Expenditures.

Tipping fee will be required when CAD cell is filled (Mechanical Dredging, Years 7 and 12)

-Currently not included.

Minimum number of days hydraulic dredging = 40